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ABSTRACT

An experiment to teach the adolescent trainable mentally handicapped child to read was conducted in four schools for the trainable mentally handicapped. Six to eight children were selected from each school to make up a reading class. Classes, held for approximately one year, used a programed reading kit that emphasized phonics as a foundation for reading. Reading level was tested before and after the experiment. Post test scores were felt to show considerable increases in nearly all cases. It was noted that the reading classes had improved the students' ability to recognize Protective Vocabulary words which were taught in the regular classroom. Improvement in the childrens' self confidence was also noted. It was felt that assessment of children should be primarily in terms of learning attitudes rather than IQ, that children in schools for the retarded should be exposed to reading readiness programs, that the reading program should aim to introduce fundamental skills involving phonics, and that the teaching approach should be of a concrete nature and carefully programed so that the child can move with confidence from step to step. (CD)

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REPORT OF AN EXPERIMENT IN THE TEACHING OF READING TO ADOLESCENT TRAINABLE RETARDED

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Design and Course of the Experiment

Under the direction of Dr. Denis Stott, Chairman of the Centre for Educational Disabilities at the University of Guelph, an experiment in teaching the adolescent trainable retarded child to read began in October of 1967. It was supported by a grant from the Ontario Association for the Mentally Retarded. A Project Director was chosen to assume responsibility for the research, and to report regularily to Dr. Stott.

Four schools for the trainable retarded were chosen to participate in the project. Experimental reading groups were organized in the Sunnydale School in Guelph, the Seneca School in Etobicoke, the Rotary School in North York and the Easthaven School in Hamilton. A small group of adults in the Guelph Occupational Centre was also introduced to Dr. Stott's Programmed Reading Kit; their progress is not included in the specific results of the research project.

The groups did not begin at the same time because of the time involved in starting a reading group and training the teacher. The Sunnydale Reading Project began in November, 1967. Pre-testing at Seneca School began at the same time. One month later, December, 1967 the Rotary School was added. In February of 1968, the Easthaven School joined the project. The pre-testing took about a month in each school, and the actual reading groups were then formed. Sunnydale School and Seneca School started reading classes in December, 1967, Rotary School in January, 1968 and Easthaven School in March, 1968.

In 1967, the Ontario Schools for the Retarded were under the Ontario Department of Education, and governed by their own local Education Authorities. Permission was given for the four schools to participate in the project by the Metro Toronto Retarded children's Education Authority, The Guelph Education Authority, the Hamilton Education Authority and the Ontario Department of Education. The Ontario Department of Education actively encouraged and supported the project, and asked teachers and principals to co-operate with the Project Director. At the same time the Department pointed out that the project did not represent a general change of emphasis in the education of trainable retarded children toward an academic orientation.

Reading classes were held three times a week for one hour at each time. The various schedules and arrangements of the individual classes varied from school to school. At the Seneca School, physical arrangements were ideal since there was an empty classroom available for the reading class. A volunteer came faithfully to relieve the project teacher from her regular class. At the Rotary and Easthaven Schools other teachers within the schools relieved the reading teacher of her regular students, freeing her to hold the reading class in her

own room. This imposed some inconveniences on the other teachers in Rotary and Easthaven Schools, and their patience and co-operation was greatly appreciated by the Project Director. At the Sunnydale School, it was impossible to relieve a teacher to take the reading group because of the small size of the school. From December 1967 to June 1968, two Psychology Students from the University of Guelph taught the reading class. In September 1968 a trained teacher from the Centre for Educational Disabilities at the University of Guelph was available, and she took over the group until the end of the research period. Since there was no classroom available at the Sunnydale School, it was necessary to use the manual training room or the small staff room.

The Project Director made regular visits to each of the reading groups. When they were in their initial stages, visits were made as often as twice a week. Later, when the groups were well established, a weekly or bi-monthly visit was made. The progress of the children was checked during these visits and plans for future lessons were discussed with the teachers. The reading teacher was able to bring up problems which had occurred during the week. All the project teachers kept notes on the progress of the students.

The Principals of the four project schools were interested in the reading groups. The Project Director kept them informed of the progress of the children, and discussed any general difficulties with them. The interest and co-operation of the Principals was both helpful and encouraging to the Project Director.

Teachers for the reading groups were chosen with the help of recommendations from Mrs. Mary Stocker of the Dept. of Education, the Principals of the Schools, and in one case, the Special Education Inspector. Flexible teachers who would enjoy taking on a new project were needed. At the same time, it was important that their reaction to teaching reading to the trainable retarded child be reasonably neutral. At the Rotary School and the Easthaven School, the teachers chosen remained throughout the entire research period. At the Seneca School, because of teachers leaving for various reasons, three different teachers were used during the project. At the Sunnydale School, as noted above, three different teachers were used with the reading group.

Evaluative Procedures

The age of the children chosen ranged from 12 to 16 at the start of the project. The reason for choosing children of this age rather than younger ones, was the improvement in behaviour, attention span, and general awareness often seen with retarded children as they enter their teens.

All of the children in this age group from the four schools were tested with the Dominion Reading Test, Primary Part I, Type A and the Daniels-Diack Standard Reading Test. The Dominion Reading Test was chosen because of its wide acceptance in the Ontario Public Schools. It has however, certain drawbacks in use with the retarded. A time limit is imposed of 10 minutes, and a child can gain marks by quick guesses even though he cannot actually read the words. The physical set-up of the test also encourages guessing. It was found that some children perseverated and would always mark a word which was in a certain position out of the four possible choices, for example, the one at the top right of the four alternatives.

The Daniels-Diack Standard Reading Test is not as well known in Canada. It is designed to test reading level based on phonic skills. Since Dr. Stott's Programmed Reading Kit teaches phonics as a foundation for reading, one phonic-orientated test was desirable.[1]

[1] "Unlike those word-recognition tests which consist of a list of words bearing no meaningful relation with one another, the Standard Test consists of a series of 36 sentences in question form .... It ensures that the children do not concentrate on mere word-recognition or 'word-calling'. Each sentences as meaning ... The construction of the 36 test items and the order in which they are presented to the child is of crucial importance ... The first question, 'Can a dog run' is easier to read than No. 16 'Can a chicken see?' There is little difference in the frequency with which all these words occur in the English language, as given by the Thorndike Word List ... The two questions are, however, placed in the test as No. 1 and No. 16 respectively because 'Can a chicken see?' contains two second-level phonic rules -- the digraphs ch and ee and a duo-syllabic word 'chicken'." (Daniels, Diack 1960).
The child reads the sentences which are printed one per page until he has failed on three consecutive sentences. Three marks are given for each of the questions that are correctly read. No marks are given for a question in which the child makes any errors, or has to be told a word. The total score for a child's test can be converted to a Reading Age, and then to a Reading Standard.

The Dominion Reading Test was given in the classroom with the homeroom teacher helping the Project Director to carry out proper procedures. The Daniels-Diack Reading Test was given by the Project Director.

From the scores obtained children were chosen to participate in the reading groups. Children who were found to have some reading skills and scored over 30 on the Dominion Reading Test or over 6 on the Daniels-Diack Standard Reading Test were excluded, as also were recent transfers from Opportunity Classes. Even if the recent Opportunity class transfers did not read, it was felt that they might not be truly trainable retarded children, since often only on their last I.Q. test had they fallen below the educable range. At the other extreme were some children who had not been able to follow the test procedures at all and had scribbled over the test: it was obvious that they were not ready to participate in a reading group. It was impossible to use children with additional handicaps such as blindness or deafness since the teaching materials were not appropriate.

From the remainder, consisting of a group of trainable children, none of whom could read, it was necessary to choose 6 to 8 children in each school to make up a reading class. The recommendations of the Principal and teachers were of great help at this stage. Those chosen were placed in the reading groups for a trial period of four weeks. Three children were eliminated for disruptive or difficult behaviour and one child moved to another school. No child was eliminated because of slow progress although in all of the groups there were some who made very small gain.

The Method of Teaching Reading

The teachers and children were introduced to Dr. Stott's Programmed Reading Kit, which teaches the phonic basis of reading. None of the children knew any phonics when they started in the reading classes. The method had several distinct advantages for the retarded. The Kit contains a series of games which by their easy gradation help even the slowest child to learn to read. Since there is nothing babyish about the material, it is not offensive to older children.[2]

[2] Retarded adolescents, like all adolescents, resent being given material intended for small children, even if, as in the case of the retarded adolescent, it is not above their mental age. This problem of suitability of material is one that all teachers of older retardates face.

The fun of the games supplies motivation to the children. The activities are constructed so as to discourage guessing, a major fault in the thinking habits of some retarded children. Since the games are very easy to play, and progress in very small steps, apprehensive children will try them and realize that they can succeed. Each child works at his own pace. In all of the reading groups the children were working at many different levels. The teacher can manage this diversity within the class since the groups are really teaching themselves through playing the games. This frees the teacher to give individual help where needed.

"The key to the method used is the building of phonic-sight habits. It combines the advantages of systems which have emphasized only one side of the learning process. The Kit is a programmed phonic method, but the phonic combinations are practised at each stage until they can be recognized at sight". (Stott 1970). Retarded children need many repetitions to master a skill and the Kit provides this repetition without boredom. The games can be played over and over again and the children continue to enjoy them.

The Kit begins by teaching the sounds as they are heard at the beginning of words. This is accomplished with the Touch Cards. The child sees a picture of a monkey and a saw with the letters M and S printed beneath them. The teacher says "Put your finger on the monkey. Now touch the saw. Now touch the letter under the picture - m-m-monkey, s-s-saw." Next the children turn their cards over and see only the letters. The teacher calls out the words, the children touch the appropriate letter and turn their cards over to see if the right picture is there. In this way a direct association is made between the sound and the letter symbol, and the child is immediately rewarded for the right choice by seeing the right picture when he turns the card over.

Some of the items in the Kit are learning items. They teach a new skill. Others are practice items. This allows the children to use a variety of games while working on one skill. The child is led into generalizing about the initial sounds he had learned. If saw starts with S, then words which begin with the same sound also start with S. For some retarded children this is a huge step to take, but one that must be taken if the child is to learn to read. If the child cannot grasp the principle that the same initial sound is represented by the same letter, no matter what the word, he can go no further. The child can be helped by different practice items and games, but, in the end, it is he himself who must make this generalization.

The learning of the vowel sounds presents special difficulties for retarded children. Some of those in the reading groups had poor speech and did not pronounce the vowels clearly. Many had very poor auditory discrimination skills and could not hear the difference between words such as 'bit' and 'bet'. The teachers spent a long

time with the vowel sounds, and some new activities giving special practice in hearing and recognizing them were introduced. One teacher also made use of the Language Master to give the children practice in hearing the vowel sounds in words and reproducing her pronunciation. The words from the Touch Cards which teach the vowels -- apple, egg, umbrella, igloo and office -- were continually used to reinforce the vowel sounds. The teacher would say, "Is it the 'office' sound or the 'apple' sound?" when a child was trying to choose the right vowel sound to construct the word cat. The Touch Card words were useful for helping the children, since they were learned so thoroughly that they immediately brought to mind the association of sound and symbol. When the child can make the association between sounds and letters so well that he hardly ever makes a mistake, he is ready to go on to the next important stage. With the Half-Moon Cards, he learns to deal with consonant/vowel groupings (ba, cu, le, ma) as phonic units. An end-consonant is added so that the child sees these combinations as words. For many of the children in the reading classes this was another critical stage. It was at this point that some children were left behind. They could not learn to handle these groups of sounds as decoding units. The children who were able to do so continued to progress. They learned to decode a group of three letters such as stu, cra, tra and were able to read the words they made in the Brick Wall game such as stuck, crack and track.

Because of the limited language development of trainable retarded children, the teachers used the words the children were reading to improve their vocabulary. To make sure that the children understood the meaning of the words they were constructing with the Half-Moon cards, the child was always asked to use the word in a phrase or sentence.

Up to this point the children had been working with phonically regular material. The next big step in the program is a carefully classified treatment of the phonic conventions (sometimes called digraphs: ee, ea, ow, au, etc.). These are introduced by the Colour Sound Cards. The name of the colour of each card contains the phonic convention to be taught. Of the 27 students participating in the project, 17 of them were at this stage. The Kit has 33 items and Colour Sounds is Item 22. They were thus approximately 2/3's of the way through the Programmed Reading Kit. In another year they could have completed it.

Results of the Statistical Evaluation

The effects of the reading program as shown by the reading tests are given in Table 1. The raw scores on the Dominion Test show the number of words correctly identified out of the number attempted. For example, that for the first student on the pre-test - 13/48 - means that 48 words (the maximum possible) were attempted but only

TABLE 1

Reading level before and after the Experiment

STUDENT	PRE-TEST DOMINION Raw	Adjusted	PRE-TEST DANIELS DIACK	POST-TEST DOMINION Raw	Adjusted	POST-TEST DANIELS DIACK	I.Q.
Seneca School							
Phyllis	13/48	1	0	21/48	9	15	46
Brian	16/27	9	0	33/38	23.5	6	53
James	4/16	0	3	22/30	14.5	21	40
Brenda	6/10	3.5	3	25/36	16	27	46
Suzanne	12/48	0	0	22/31	14	15	49
Gary	15/31	7.0	0	30/38	20.5	9	52
Glen	8/17	4	0	39/47	27	52	53
Sunnydale School							
John	13/33	5	0	25/28	18	6	48
Louise	5/11	2	0	19/27	12	3	49
Nancy	7/27	0	6	19/48	7	12	..
Gary	10/32	2	0	22/48	10	15	52
Tommy	13/48	1	3	13/48	1	3	47
Frank	27/48	15	0	37/48	25	36	60

TABLE 1 (cont'd)

Rotary School							
Mary Ann	27/48	15	3	44/48	32	39	48
Tom	10/48	0	0	33/38	23.5	9	50
Peter	11/48	0	0	17/30	9.5	0	45
Harris	1/2	0.5	3	27/48	15	24	27
Mario	2/6	0.5	0	17/48	5	0	..
Frank	9/32	1	0	32/48	20	15	..
Connie	8/13	4	0	37/48	25	21	50
Easthaven School							
Bonnie	26/48	14	3	35/48	23	18	48
Charlaine	23/48	11	0	41/48	29	27	48
Victor	8/24	2	3	19/24	13	3	48
Larry	10/10	7.5	3	43/48	31	42	57
Rusty	9/37	0	0	13/20	8	12	41
Renato	17/42	6.5	0	41/48	29	24	52
Margaret	11/30	3.5	0	38/41	28	21	78
AVERAGE SCORE	11.89	4.26	1.11	28.30	18.09	17.59	

TABLE 2

CORRELATION BETWEEN READING TEST RESULTS AND IQ

IQ and:

Dominion post-test raw score
r= .4484

Dominion post-test adjusted score
r= .4530

Daniels-Diack post-test
r= .1669

Gain in Dominion adjusted
r= .2502

Gain in Daniels-Diack
r= .2254

13 identified correctly. Since the child tested has to choose between only four words, a score of 25 per cent of those attempted can be obtained by chance. It is therefore necessary to make an adjustment to remove this factor. This was done by subtracting 25 per cent of the number attempted from the raw score. This is not an accurate individual correction because a child may be lucky or unlucky, but it serves to make the results of the pre-and post-test comparable as a whole, and provides a more suitable score for correlation with the Daniels-Diack Test. It is seen from the average pre-test scores of the adjusted Dominion and the Daniels-Diack that the students had practically no reading ability at the outset of the experiment.

The post-test scores show considerable increases in nearly all cases. Only 9 of the 27 children failed to reach a score of 10 on the Daniels-Diack, which - being a phonically planned test - is the better measure of progress in this experiment. Curiously, some of these did moderately well on the adjusted Dominion, which means either that such phonic skill as they had gained enabled them to make more intelligent guesses, or that they were lucky.

On both post-tests the average scores showed an increase of several hundred per cent over those of the pre-tests. The average score on the adjusted Dominion rose from 4.26 to 18.09, and that on the Daniels-Diack from 1.11 to 17.59.

Several of the students manifested severe handicaps of temperament, which adversely affected their behaviour and responses both in the learning and test situations. This was no doubt one reason for the amount of discrepancy in the test results. The correlation between the post-test scores on the unadjusted Dominion and the Daniels-Diack was .6917, and between the latter and the adjusted Dominion .6499. Those coefficients are satisfactory considering the different character of each test and the difficulty of testing temperamentally impaired children.

Intelligence-quotients were not taken as part of the experiment, but each student had been tested during the periodic psychological assessments of the trainable retarded. The most recent IQ's were correlated with the post-test scores on each of the reading tests, and with the gains made. The results are given in Table 2. The highest correlations are with the Dominion scores. Even these, however, are not high. The correlations between IQ and the gains in reading skill, whether measured by the Dominion or the Daniels-Diack Test, are low.

In interpreting this relatively slight relationship between IQ and the ability to master the beginnings of reading, we have to ask ourselves what an intelligence-test result really tells us. We can never prove that it measures a hypothetical quality called 'intelligence".

All we can say is that when presented with a series of more or less unfamiliar tasks, which are graded so that eventually the child meets some which are too difficult for him, he shows a greater or less degree of success. But even the slightest acquaintance with the retarded, or indeed with any category of slow-learning child, is enough to make us realize that, in this special kind of situation, a number of other factors besides that of a hypothetical 'intelligence' are operating. The child's success depends in the first place upon the attention that he gives to the task - but many mentally retarded children lack concentration. His willingness to attempt the test depends upon his level of confidence - but many of these children are painfully apprehensive of anything which appears difficult or strange. One could continue instancing other types of behavior of the retarded which would spell failure in a test situation whatever their intelligence might be.

Such considerations led us to ask what value an IQ has in the assessment of the retarded. A child will often show the same pattern of behavior in the test-situation and in his learning, so that a certain correlation between his performance in the two is to be expected. If, on the other hand, such factors as lack of concentration and of confidence are important determinants of the test-result, but the teacher is able to train the children to concentrate and to be confident, the IQ will have little predictive value when it comes to reading ability. In this experiment the children went through a program of training in the learning strategies while in the reading program, and this included training in concentration and confidence. This more than anything else probably accounts for the lack of significant correlation between their IQ's and their progress in reading.

Reading Progress and Learning Style

Table 3 shows the relationship case by case between reading progress and the child's typical behavior in the learning situation. Unfortunately it was not possible to keep a week by week record of each child's behavior, or of the extent to which he learned to use better learning strategies. Consequently the descriptions refer in part to the attitudes, arising from his temperament, which each child brought to the learning situation, and in part to those which he acquired during the experiment. Nevertheless they serve to bring out an interesting relationship between the strategies that a child habitually uses and his progress. Also given for purposes of comparison are the category of mental handicap, as stated in the school records, and other handicaps. Among these will be noted that the children in the Sunnydale School group had no regular teacher for the experimental reading program.

A close connection is seen between the children's ways of coping with learning and their reading progress. This is summarized in Table 4. "Thoughtful" means that the child gave his attention to the task and tried to work out a solution. Of children thus described five were in the good-progress, one in the moderate-progress and none in the small-progress group. The hyperactive, distractible children did well when eager to learn, four of them falling in the good-progress and only one in the small-progress group. Of the six whose hyperactivity and distractibility was not counteracted by good motivation, four fell in the small-progress group. The Unforthcoming children did least well. This is a handicap of temperament which consists in an extreme apprehensiveness about anything strange or with the appearance of difficulty. In its acute form, as with Tim at the Sunnydale School, the child even avoids looking at the task for more than a fleeting moment, turning his eyes away or shielding them from the sight of the materials. At this degree of severity it must be accounted a form of retardation in itself.

These results lead one to ask to what extent the handicap of these and many other similar children may consist, in part or wholly, in incorrect use of their mental ability. If a child's behavioral organization is so impaired that he cannot apply his mind to learning, or to the solution of any problem he is de facto mentally handicapped. The difference between this view of retardation and that which assumes a deficiency of intelligence in all cases is that it opens up the possibility, with some learning-handicapped children, of changing their learning-style and so removing or mitagating the reason for their handicap. This is an exciting possibility which might be the subject of future research.

Learning and Teaching Strategies

Most of the senior children in the four schools were eager to be part of the special reading class. It became a mark of prestige. The only time that children objected to coming was when the class overlapped with a favorite activity such as cooking or manual training. There was some apprehension to the part of the students when they first entered the classes. To many of them, learning to read promised nothing but failure. When introduced to the Touch Cards which teach the sounds in the initial position, one of them remarked, "This isn't reading, it's easy."

The teachers involved had some learning to do also. Perhaps because of the slowness with which retarded children learn, teachers of the retarded have a tendency to "teach too hard".

They come to believe that only by sheer will-power on their part will the children learn. They say things which unknowingly can cause a great deal of tension in apprehensive children --- "Come on, you can do it, you knew it yesterday, don't go so fast, etc." Sometimes they give long explanations which, with the retarded child, often cause him to tune out the teacher. Most teachers of the trainable retarded admit that one of their biggest mistakes is to talk too much. When a child is having difficulties, they tend to talk even more.

The teachers of the Project appreciated that the items in the Kit lead the child from one stage of learning to another in a planned program. Experiences have been arranged for him in such a way that he learns through his own mental activity, not through the teacher's talking or pressuring. The teachers also became aware of the fact that many children fail deliberately in order to gain attention. While playing a bingo game, one boy always made many mistakes if the teacher stood near his desk, but started filling in his card correctly as soon as she moved away from him.

"Most learning failure is due to bad ways of thinking, or not thinking at all. Of these, guessing -- which just means not thinking -- is the worst. By guessing a child short-circuits the mental processes which are going to lead him to understanding. It is a form of giving up. It is just as bad for a child to make a correct guess as an incorrect one, because then he gets the idea that guessing pays, and he will reinforce his habit of cutting out the thinking process." (Stott, 1970) The teachers in the reading project became very aware of the habit of guessing on the part of their students. Many of the children habitually guessed when asked a question or when playing a game. These tended to be talkative, restless children who had difficulty concentrating on what they were doing. A vivid example of this occurred early in the Project. A rather over-confident, talkative girl was paired with a cautious thoughtful mongoloid child to play the Frame game with the Touch Cards. This game involves listening to the beginning sound of a word and then choosing the appropriate card by the initial letter. Thus, when her partner asked, "Where is the cat?", she had to pick the card with the letter C on the back. Until the letter-sound associations become known this needs some thought; random choices have a big chance of being wrong. There is also a rule in all of the games in the Kit that you have to be right the first time to win a card. Our 'hit-and-miss', guessing child, playing with the careful mongoloid, found that she was losing badly. She lost three games before it seemed to dawn on her that her strategies would never get her anyplace. Being overly confident about winning and socially quite advanced, she was completely amazed

with the rapidity with which she lost. The child who was using the proper habits was carefully examining each card before she chose and was rewarded by winning a card every time.

Teachers of the retarded unknowingly often encourage and reward the bad habit of guessing. They make remarks such as "Who can tell me first" which usually immediately brings a wild guess from one of the children. When asking a question, they often allow many wrong answers and then praise the child when he comes up with the right one. This reinforces the idea that all one has to do is keep guessing and eventually one might hit the desired response. Retarded children make wild guesses rather than thinking for a number of reasons. The desire to win teacher attention and praise is a major cause. Some children don't even go so far as to guess. They just raise their hands when a question is asked because they want to be noticed. Often they don't have any idea what the question was. Some of the children in the Project overcame this self-defeating habit. They learned through the games that guessing did not pay. It wasn't really necessary for the teacher to point it out. It became obvious to the child. When students who had become quite thoughtful suddenly reverted to guessing, the teachers came to recognize it as a signal that the child felt under pressure. Sometimes this occurred when a new learning item such as the Half-Moons was introduced. "When introduced to the Half-Moon cards, Jackie seemed to falter in the phonic skills he seemed to know so thoroughly. He thought that an N was a T. He appears to feel under pressure -- tension in his jaw"[3] The teacher was able to solve this problem by letting him drop back and play the easier games for a longer period of time. He did not feel that he had failed since there were other children still working on the easier items.

The problem of apprehensiveness and tension can be quite severe with retarded children. Seven of the project children could be classified as "unforthcoming" by Dr. Stott's description of this type of faulty learning behavior. "The basic handicap of Unforthcoming children is their extreme apprehensiveness about anything new, strange or difficult. When called up to give an answer they become bewildered and 'freeze' -- or as teachers say, 'withdraw into their shell.' Their acute lack of confidence is seen in their being afraid to give an answer or in tentatively half-giving it and waiting for an encouraging sign from the teacher. For them, just being asked a question, or having to read a word to an adult, is a tension-situation." (Stott, 1970) The teachers found that even direct eye contact causes tension in these children. One of the children always froze when asked a direct question, but if another child answered a question or read a word incorrectly she would often give the right answer. These children should be left to learn in their own time, such as in playing games with other children.

[3] Project Directors Notes

One of the first difficulties encountered in using the Programmed Reading Kit with trainable retarded children was their dependence on teacher approval and continual attention. Two children would play a game for five minutes and then require teacher assistance. This was difficult for the teachers since four groups of children sometimes decided they needed the teacher at the same time. However, this situation improved, and the children were able to play the games independently for 10 or 15 minutes at a stretch.

The introduction to reading in book form gave some children difficulty. One boy in the class could read any one of the words in Hop, Skip and Jump[4] if they were presented individually on flash cards, but could not read them from the book. The book itself appeared to be a source of tension initially, and it was only with time that he gained enough confidence to read from it.

The teachers of the groups were concerned about the children forgetting what they had learned during the vacations. A review was carried out after the long summer vacation, and within two weeks all of the students were at the level they had reached before the holidays.

Teachers' Comments

Toward the end of the project, the Director asked the regular classroom teacher to complete a form about the Project children in her class. It included information on the child's speech, printing, protective vocabulary, reading, self-confidence, general behavior and attitude toward the Reading Project classes. All of the teachers stated that the children were eager to attend the reading classes, often reminding the teacher when it was time to go to them. One of the frequent criticisms of teaching reading to trainable retarded children is that it puts undue pressure on the children, making them unhappy and tense. No evidence of such unhappiness or tension was seen.

Many of the teachers noted that the reading classes had improved the students' ability to recognize Protective Vocabulary words such as Stop, Exit, Men, Women, etc., which are taught in the regular classroom. "Pat can recognize approximately 20 Protective Vocabulary words. This is mostly sight reading, but when this fails, she uses her knowledge of phonics."[5]

4 Hop, Skip and Jump, (unpublished, Irene Needham and Dorothy Rogers)

5 Teacher Evaluation form

The teachers also noted that for many children the experience of being in the Reading class had improved their self-confidence. This comment was made in several cases about children who did not show much progress in reading. The reading class was potentially a failure situation for them, and yet their teachers noted an improvement in self-confidence. It may be that these particular children will never benefit from formal reading instruction, and yet they were able to participate in reading classes at their own rate without experiencing frustration. The method and the teaching techniques protected them from the experience of being pressured.

The Present Situation

Although the formal teaching of reading has been discouraged in the Ontario schools for the trainable retarded, many teachers continue to present some type of reading program. All teachers of the retarded include "Protective Vocabulary" in their curriculum. The theory behind Protective Vocabulary is that all children must know certain words for their own protection, or in order to meet social requirements. Words such as Stop, Men, Women, Poison etc. are presented to the children. These words are usually on white cards with black printing. The word has to be memorized visually as a unit, that is to say, acquired as a sight word. An immediate problem arises. The child may find the word Men written in gold script on a black washroom door, and it will not look at all like Men in black print on a white flash card. The total picture will be completely different. Without a knowledge of phonics, the retarded child has little chance of being able to transfer his learning of the sight word on the flash card to the door.

Trainable retarded children also have difficulty retaining sight words. They quickly reach a saturation point. As they learn new words, they forget the ones they have already learned. Many teachers of the retarded in Ontario carry the principle of Protective Vocabulary beyond the list of necessary words. Their classrooms are often dotted with flashcards. Doors and windows have appropriate signs on them. A teacher presenting a lesson on different types of tools will have appropriate flashcards to identify each tool. Yet, there may not be one child in the room who can actually read. Most of the teachers who make such use of flashcards say that they are not teaching reading in their classrooms. When asked about the signs, they often answer that they use them hoping that some child might pick up a few sight words. Since there is no plan in the way, or in the number of times these words are presented the children stand little or no chance of remembering them.

Where teachers have expanded on Protective Vocabulary methods, and use experience chart reading in their classrooms, the problems of using sight reading techniques with the retarded become obvious. The children dictate a story to the teacher, often based on a recent

experience. An experience chart about a visit to a farm might read: "WE TOOK THE BUS TO A FARM. WE SAW THE COWS AND HORSES. THE HAY RIDE WAS LOTS OF FUN." The teacher prints the story on a large piece of paper and the students take turns reading it. There may be one or two children in the class with some reading skills. They read the story first, and as one teacher said, "By the time the children who can't read have their turn, they've usually got it pretty well memorized, and it makes them feel good because they think they're reading."

This type of "reading" reinforces the guessing habits of the children. Because they know what the story is about, they often give their version of the story as the teacher points to each word on the chart. She points to cow and the child says "horse" because he knows there is a horse somewhere in the story. When he meets the word "we" in the second sentence, the teacher says, "Now you should know that word because you said it before up here", and the child says "bus" because he knows he said the word "bus" before. This procedure has very little, if anything to do with reading. Written English is phonic-based, even though with many irregularities, and children taught by a totally sight method only make progress in reading if they figure this out for themselves. Thus, by experience-chart reading, a great deal of time is wasted and the faulty mental habits of the retarded discussed above are reinforced.

If retarded children are to be taught to read, they must be given the basic tool -- a knowledge of phonics. The task of learning to associate the sound and the letter-symbol is a far simpler one than that of learning and remembering all words as units. If it is felt that retarded children should not be taught to read in the sense of a systematic presentation of phonics, there is little value in trying to get them to memorize sight-words.

Schools for Retarded need not take an extreme position with regard to the teaching of reading. Obviously a large proportion will never be able to read, and with some it would be a waste of time to try to teach them. But if reading is not taught at all, the potential of some children will not be fulfilled.

Opponents of teaching reading to retarded children have said that it is too time-consuming and offers little reward to the child in the end, often producing fear and frustration. The answer to this criticism must be that the methods of teaching are at fault. The teaching of any subject can produce tension in the student if the teacher uses inappropriate techniques. Nor is there any need for the teaching of reading to take up so much of the child's school day that he is not benefiting from instruction in other areas such as oral language development, number concept, self-care, physical education, home training, and manual training.

If a retarded child appears to be ready to learn to read, then he should be given a chance to show whether he can or not. How far he will go, how well he will learn to read, how much he will understand of what he reads, are questions that can be answered only during the learning process. If a method of teaching reading is used that allows him to move at his own pace, and enjoy himself as he learns, there will be no danger of his experiencing frustration and failure. If it becomes apparent that he cannot progress any further, no harm has been done, and his reading program can be discontinued.

Often it is asked: Of what use is it to teach reading to retarded children when most of those taught will not learn to read very well anyway. No such question is ever asked about the teaching of number concepts because number concepts are <u>useful</u> and have obvious application in a sheltered workshop setting.

Knowing how to read, even if the knowledge is limited can also be useful. Phonic skills give the child a method of decoding protective vocabulary; they enable him to read simple signs, recipes on boxes, and simple books. Beyond this, however, reading gives the retarded child a sense of pride and accomplishment because he can do something that his normal brothers and sisters do. When he was first able to decode a group of letters and read a word, one of the students from the reading class said: "Now I can read, like my little brother."

However, the decisive argument for giving the trainable retarded the opportunity to learn to read lies in our inability to decide in advance which of them will succeed and which will not. It was seen from the statistical analysis of the results of the experiment given above that there was little relationship between IQ and reading progress. No other test, administered at any given point of time, is likely to have better predictive value. The factors making for success in reading, as in any other activity, are probably more those of motivation and the general organization of behaviour than of cognitive ability. If a child cannot concentrate, or guesses, or is afraid to make any attempt to solve problems, the learning processes do not take place and his level of cognitive ability is irrelevant because it is not being used. Whether the cognitive ability of a retarded child changes with age is hard to say, but it is indisputable that many become more mature, better motivated and better organized in their behaviour. Consequently there are likely to be in every school for the Trainable Retarded a small number of children who have become educable. It may not be advisable to move then from a sheltered environment because they may not be capable, socially or temperamentally of coping within an ordinary school. It is these children who should be given the opportunity to acquire whatever education they are capable of, including reading, within their own familiar and secure school setting.

Recommendations

The experience gained from this project justifies the following recommendations:

1. For those children who show promising development in terms of awareness of their surroundings, control of their behaviour and work habits, a reading program should be provided in Schools for the Trainable Retarded.

2. Assessment of children should be primarily in terms of learning attitudes rather than IQ, since it is the learning attitude or behaviour that appears mainly to determine success or failure in acquiring academic skills.

3. Schools for the Retarded should include in the curriculum pre-reading and pre-learning, or 'learning-to-learn' programs, to which all children would be exposed. Good progress would indicate that the child should be ready to begin on a reading program. This pragmatic but systematic approach would avoid the necessity of a formal decision that the child should or should not enter a reading program. By his performance in pre-reading and pre-learning programs, he would decide for us whether he is ready for reading.

4. The reading program should aim to introduce the fundamental skills involving the use of phonics.

5. The teaching in a reading class should be of a concrete nature, in which the students learn the sound values of letters by hearing them in words, rather than by an abstract learning of these sound values as separate associations which then have to be blended.

6. The method must be carefully programmed, so that the child can move with confidence from step to step.

7. The methods of teaching protective vocabulary must be re-considered. The present methods are ineffective, and reinforce guessing strategies. Wherever possible protective vocabulary should be taught as part of the reading program as outlined above. Even if a child can learn only initial consonants, knowledge of these sounds gives discriminatory cues in the recognition of protective vocabulary words.

8. Any kind of pressure to learn must be avoided. Learning should take place within a game situation wherever possible. Situations which produce tension in the child must be reduced to a minimum. Teachers must become familiar with the strategies their students are using in a learning situation, and with techniques and methods of remediation.

9. The teaching of the retarded requires a high degree of specialized skills over and above those needed in public school teaching. There is an urgent need for the establishment of regular professional training for teachers in the field of special education. Such programs would be best established within a university setting.

TABLE 3
Reading progress in relation to learning style

	Learning behaviour	Category of Mental Handicap	Other Handicaps	Reading Progress*
Seneca School				
Pat	unforthcoming, tense	normal appearance, familial defect		moderate - 15
Bill	unforthcoming, withdrawn	normal appearance, brain-injured		small - 6
John	thoughtful but unmotivated	mongoloid		moderate - 18
Elizabeth	thoughtful eager	mongoloid		good - 24
Sarah	thoughtful	cerebral palsy	Involuntary movements hampered participation in games	moderate - 15
Gordon	hyperactive easily distracted	cerebral palsy	Involuntary movements hampered participation in games	small - 9
Walter	thoughtful attention-seeking	brain-injured		good - 52
Sunnydale School				
Jim	hyperactive, easily distracted	abnormal appearance, congenital defect		small - 6
Laura	distractible, guesses at problems	normal appearance, brain-injured		small - 3
Mary	unmotivated	mongoloid		small - 6

Glen	guesses at problems eager	brain-injured		moderate -	15
Tim	unforthcoming avoids learning situations	brain-injured		small -	0
Jack	restless but eager	brain-injured		good -	36
Rotary School					
Marie	thoughtful, eager	familial defect		good -	29
Tim	unforthcoming, avoidance of learning situations	brain-injured		good -	23.5
Paul	unforthcoming, unmotivated	brain-injured		small -	9.5
Henry	thoughtful but unmotivated	mongoloid		moderate -	12
Mark	guesses at problems, distractible	congenital defect		small -	5
Fred	thoughtful	mongoloid	severe speech defect	good -	20
Cathy	hyperactive, guesses at problems	brain-injured		good -	25
Easthaven School					
Barbara	thoughtful but unmotivated	congenital defect		good -	20
Cora	eager but guesses at problems	congenital defect		good -	29
Vincent	unforthcoming	abnormal appearance, cause unknown		moderate -	10
Lester	eager but hyperactive	familial		good -	28
Harry	unmotivated, clowning	mongoloid		small -	8

Ray	eager but easily distracted	abnormal appearance, cause unknown	good	- 29
Mary	thoughtful unforthcoming	post-natal brain trauma	good	- 28

TABLE 4

Summary of relationship between learning style and reading progress

Learning attitude	Small progress (gain of 0-10 points)	Moderate progress (gain of 11-19 points)	Good progress (gain of 20 points or more)
Thoughtful	-	1	5 (also one unforthcoming)
Thoughtful when motivated	-	2	1
Hyperactive, distractible but eager	1	-	4
Hyperactive, distractible, guessing	4	1	1
Unforthcoming	3	2	1
Unmotivated	1	-	-
	9	6	12